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Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

Vol. XIV, No. 1 NOVEMBER, 1937 $2.00 a Year

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A FEW SUGGESTIONS

RUB-LESS LACQUERS are *really* going to town! Almost without exception, every trial order has resulted in quantity purchasing. The idea is that they flow out more smoothly, require *less* rubbing—consequently more lacquer remains on the surface and a marked saving is shown in rubbing costs. Order enough for a *real* test and if it is not all we claim, return unused portion at our expense.

WATEROIL STAINS are by no means just another brand of non-grain-raising stains. They are *definitely* different—they do not change with age, precipitate, fade or bleed.

No. 1900 CLEAN-UP POLISH eliminates haze or bluish bloom. Miscible in water leaves finish clean and dry.

Write us about our newest finishes—Amber Mahogany—Moderne Walnut, and a long list of others such as Georgian and Antique Bleached Mahogany—Olive, Belgium and Patina Walnut—NuDark and Autumn Maple, English Oak, etc.

P. S.—*Don't forget* DU-BAR BLEACH.

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Manufacturers

"UNQUESTIONABLE QUALITY" WOOD FINISHING SUPPLIES

1830-32 NORTH LARAMIE AVENUE CHICAGO, ILLINOIS

. . . *Finish*

small parts

BETTER - FASTER LESS COST

You can do that by putting them in the Filwhirl Enameler, which by centrifugal force, completely coats every crevice and corner. It's the modern way of coating parts or pieces in multiples rather than singly. Let us have samples of your products, and we'll coat them for your inspection, and give you full information about this wonderful machine. Few concerns can afford excessive finishing costs, and this is the answer. Write us!

THE LEON J.

BARRETT CO.

Grafton Street Worcester, Mass.

Letters from Readers

OF INDUSTRIAL FINISHING

Editor's Note—These letters have been promptly answered and all of the inquiries have been referred to advertisers in the magazine. They are published here to indicate or suggest certain interesting trends of thought and activity in the industry, and to encourage further inquiries, comments and suggestions. The names and addresses of firms or individuals whose letters are published here may be had by writing to this office, or letters sent to them in care of this office will be forwarded at once.

Electric Burn-in Knife

Will you please direct us to a source of supply for an electric burning-in knife that has a pilot light? We are needing some of these in our shop.—E. & N. Furn. Co.

Air Filter

In the February issue, we wish you would please give us further information where the Purolator Air Separator, illustrated on pages 37 and 38, can be obtained. We are interested in getting in touch with the firm that manufactures this article and wish you would kindly give us this information by return mail in order that we can check into this further.—A. O. Furn. Co.

It's Motor Improvements, Inc., Newark, N. J.—Ed.

Spray Booth Coating

Could you give me the name and address of the concern that manufactures cleaning compound to be used as a temporary coating for the interiors of spray booths? This product comes in powder form for mixing with water, and when dried, it turns snow white.—H. N. Furn. Co.

EDITOR'S NOTE: This inquiry is typical of several others asking for the same information. All have been answered promptly.

A great many inquiries have also come in asking for further information about another removable coating for spray booths, as mentioned in a short article in October issue, page 46. It is obvious that a substantial demand exists in different industries for an easily removable coating for the interiors of spray booths—something that is economical, convenient and safe; something better than grease or paper.

To Finish Ebony

We are making a store counter with ebony wood on the top of the band. As ebony is oily I have been unable to make the finish adhere to the wood. I have made samples with shellac, lacquer and varnish but when bumped or scratched it will peal off to the bare wood. I have never had to finish ebony before nor can I contact anyone who has, so I am writing to you hoping to get any comments you may have on the finishing of this wood.—A. C. L.

Photographic Silk-Screen Stencil Plates

We refer to your February 1937 issue, page 43, wherein you describe in a paragraph "Photographic Silk Screen Stencil Plates." We are very much interested in decorative effects for metal vanity cases.

We feel that this silk-screen method opens an avenue for us which as

Metalized
PRIMER-SURFACER No. 4776-A
for the foundation of the finish

Primes and Surfaces in one operation on
METAL — WOOD — COMPOSITIONS

Covers—fills—dries fast. Sands in ten minutes. Topcoat immediately after sanding.

Leafing action of metalic ingredients insures covering, hiding and filling properties.

Excellent base for oil enamels, air dry or bake, lacquer enamels or synthetics.

Perfect adhesion and flexibility on all metals.

We invite inquiries from jobbers of Industrial Finishing Materials.

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COARSE CLOTH MASKING TAPE

SAMPLES ON REQUEST
SIZES ¼" TO 36" WIDE
IN 60-YD. ROLLS

THE REVOLITE CORP.
REG. U.S. PAT. OFF.
NEW BRUNSWICK, NEW JERSEY

yet we have not touched on. Would you please send us whatever information you have on this subject, together with the resource for its manufacture, preferably a resource located in New York City proper?—E. F. Co.

In reviewing an old copy of INDUSTRIAL FINISHING, this copy dated Feb. 1937, we notice reference on page 43 to photographic silk-screen stencil plates and we are wondering if you could give us the name of the manufacturer of these plates.

The product you inquire about is manufactured by Naz-Dar Co., 4014 Rockwell St., Chicago, Ill.—Ed.

Violin Varnish

I have one of your magazines dated May 1929. In an article called "Refinishing Violins" by Chas. W. Gray, it states that the source of supply for a valuable violin varnish will be supplied on request. Would it be possible to still obtain this information? If so I would appreciate it very much, as I have an old violin I am going to refinish according to the article in your magazine.—L. Van R.

Finishing Brass

Can you tell me of a good method of finishing brass? We have been using the acid dipping process, and we would like to find either an improvement on our method of dipping in acid, or learn of some method of applying a finish which resembles brass.

Our production is so small that we cannot afford an expensive outfit, but we would like to have you give us a dipping formula, or refer us to some one who can tell us what we want to know.—M. U. R. Co. (Signal Equipment; Fire Alarms.

Wood Graining on Metal

We built several thousand coolers in 1937, and we expect next year's volume to be much greater. We do not have a lot of extra room in our factory for slow finishes, so if you quote us on anything along this line, please take this into consideration so far as possible.

We will want perhaps walnut grain and other grain finishes put on in the simplest, most economical and

TRY THIS
low-cost
WAY
TO STRIP REJECTS

LIKE so many other jobs in your plant, stripping rejects is just what you make it. It can be a time-consuming job. It can be fire hazardous, or be the cause of objectionable fumes.

On the other hand, with the new Oakite materials specially prepared for this work, stripping rejects can be done with

SAVINGS

in time, effort and money that

WILL SURPRISE YOU

Put your problems up to the Oakite Service Man the next time he calls. Or, if you prefer, ask for full information now. We've had a good many years' experience in this work, and we can help you as we already have so many others. Write. No obligation.

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OAKITE
SPECIALIZED INDUSTRIAL CLEANING MATERIALS & METHODS

STENCIL
LACQUER SPRAYING

WE CAN
SPRAY
ANY
SHAPE
STENCILING
JOB

J. & R. MFG. CO.
69 Richmond Street Providence, R. I.

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in the development and production of quality finishes has resulted in many outstanding Glidden achievements. If you have industrial finishing problems, write Department D-3 now.

THE GLIDDEN COMPANY
National Headquarters
Cleveland, Ohio

GLIDDEN
Everywhere on Everything
Glidden Products Now Carry the Famous "Time-Tested" Mark of Quality

fastest way. If you have anything that will do the job, we hope you will give us complete details and prices by return mail.—D. N. Mfg. Co.

Lacquered Sheets

In the April 1937 issue, on page 64, the D. D. Box Co. are asking for sheet lacquer or something similar thereto. We are in position to furnish sheets lacquered or plated in fancy designs, which some of the fancy-box manufacturers use.—National Sheet Metal Co.

Rustproofing

I am interested in the Oxoseal Process, described on the page 7 in August issue. Will you please give me the complete address of the manufacturer?—N. E. Z. Bucarest, RUMANIA.

EDITOR'S NOTE: Several inquiries of this kind have come in. Rustproofing materials, methods and equipment are increasingly in demand among more and more firms whose products are made partly or entirely of iron or steel.

January Review

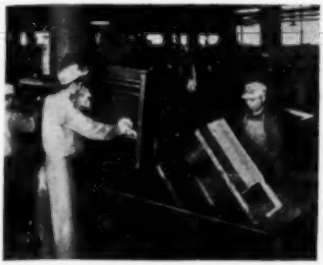
The January 1937 issue, containing a "Review of New Finishing Materials," has just recently come to the attention of the writer. Many products of interest to us are listed. We will appreciate knowing the manufacturers' name and address of listed products bearing the following identification numbers:

150	204	220
151	205	221
152	206	222
155	207	229
160	208	233
202	219	234

Thank you very kindly for this service.—The R. Chemical Co.

Special Enamels

In reviewing the 1937 issues of INDUSTRIAL FINISHING, I have noted in particular the January issue devoted to brief summaries of products developed by manufacturers in this field. If it is not too late to get the information I would appreciate details on items devoted to white baking enamels (173, 183, 192, 194, 195);



Stille-Young Dip-Staining Process in Cabinet Plant

the novelty finishes (150, 151, 156, 157, 158, 159); and special enamels (196, 198, 203).

We would greatly appreciate your cooperation in this matter so that we will be able to get in touch with the manufacturers.—V. & D. Co.

EDITOR'S NOTE: Throughout the year many inquiries come in, prompted by items published in the Annual Review of New and Improved Finishing Materials — indicating sustained reader interest in copies of the magazine several months after publication. An Annual Review of What's New in Finishing Materials, etc., will be published in Jan. 1938 issue of INDUSTRIAL FINISHING.

Waterproofing Canvas

Please refer to page 9 of your September number and ask the manufacturer of the product to waterproof canvas to send us complete data and prices on this item.—R. C. J., San Juan, Puerto Rico.

Striping Tools

Will you please send us information concerning a small machine for striping furniture or automobiles? We would like to know the name of the manufacturer and prices.—O. T. Co.

We would like to have some information with reference to a striping machine on which lacquer enamel can be used on metal moldings.—M. L. R. Co. (Show Case Doors, Moldings).

Stille-Young

Lacquers
Stains
Sealers
Fillers
Enamels
Varnishes

Are manufactured at Chicago, Illinois, and High Point, North Carolina, by

THE STILLE-YOUNG CORPORATION

and an inquiry from you will bring action at once.

Grain Reproduction

We are very much interested in introducing wood grain and marble reproduction to the Swedish market. We should be thankful for information as to whether there is any American firm besides —— and —— dealing in this line. The two firms mentioned are not in a position to give us the representation in this country due to other agreements. As mentioned, we should thank you for the name and address of another firm manufacturing, for instance, decalcomanias for reproduction of wood grain and marble on wood, metal, glass, wallboard, etc. — T. G. B., Stockholm, SWEDEN.

Finishing Standard

by Gustave Klinkenstein
Vice President & Technical Director
Maas & Waldstein Co.

IN FINISHING the Air Pilots and other air-conditioning units manufactured by Standard Air-Conditioning, Inc., consideration had to be given to the following facts:

1) These units are, in many cases, placed in well-furnished homes and offices; hence, they must be so finished that they will harmonize with their surroundings.

2) The finish must remain attractive for a reasonable length of time because few large orders are placed without a preliminary trial of a small number of units. If, during this trial period, the finish of the units should deteriorate conspicuously, it would be difficult to secure the larger order.

3) The finish must be able to stand up under rather severe service conditions. Liquids of all kinds found in the home may be spilled on them; children may play at them; books, toys, and

View in the spray department where both primer and finishing enamels are applied.

Air-Conditioning Units

other objects may be laid on them; and people may even climb up on them to adjust window shades, etc. Then, too, the units are installed at windows. This means that they are exposed to rain, snow, direct sunlight, and a wide temperature range. In the case of the Air Pilot, a portion of the unit projects outside the window in which it is set so that this part is exposed to the weather at all times.

4) As it is impossible to finish a completely assembled unit, the indivdual steel stampings, from which the units are made, must be finished separately and then assembled. The finish must be able to withstand this handling and be easily retouched, if marred.

Synthetic Enamels Selected

It is evident that a finish to satisfy all of these conditions must have a fine appearance and be exceedingly tough, durable, and resistant to a large variety of destructive agencies. Consequently, a high-grade baked synthetic enamel finish best meets the requirements. In addition, the steel stampings must be given the best available protection from corrosion.

After many experiments and extended tests, a schedule was adopted which included the use of the bonderizing process of rustproofing, and a line of synthetic finishes supplied by a nationally known manufacturer of finishing

A finished "Air Pilot" air-conditioner, finished in mahogany, eggshell luster.

materials. The standard colors selected for the units were gray for basement installations; and plain mahogany-walnut brown, ivory with black trimmings, and walnut grained work for home and office units. All finishes are in eggshell gloss. Thinners for each finish are supplied by the finish manufacturer.

A step-by-step outline of the progress of the stampings, from their receipt to the completed unit, is given below.

Cleaning and Rustproofing

Stampings are cleaned of all traces of oil, grease, and dirt in a modern vapor degreaser. Then they are bonderized by being dipped in a solution of bonderite, prepared according to the specifications of the bonderite manufacturer. They are rinsed in clean water and dipped in a weak solution of chromic acid. After drying, the stampings are wiped with

a cloth to remove any slight traces of the solutions which, if left on, would injure the finish.

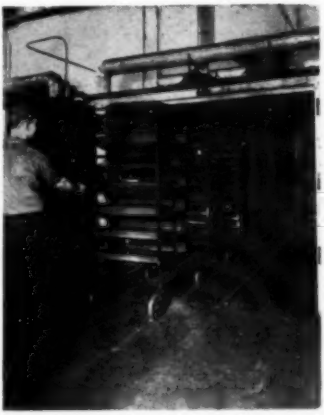
Applying the Plain Finishes

Stampings forming the exterior surfaces of the units are first sprayed with a coat of gray synthetic primer, in a finishing room that is kept under air pressure so that no dust is drawn in when the doors are opened. The primer coat is air-dried for from 15 to 30 minutes; then baked one hour at 300°F. Following this baking operation, the primed stampings are sanded lightly, especially along the edges.

The finishing coat is sprayed on, air-dried as before, and baked one hour, at 350°F. for gray and brown; and at 300°F. for ivory.

Finished stampings now pass to the assembly room. After assembly, the completed units are inspected and retouched if necessary—though, because of the toughness of the finish, retouching is rarely required.

The first step in the finishing process is to clean the steel stampings in a degreaser. Stampings are plunged into a bath of vapors of a solvent which condenses on the stampings and thoroughly removes grease and dirt.



After spraying, each coat air-dries 15 to 30 minutes, and is then baked for one hour at 300°F.

Stampings used in the interior of the units are dipped, first in gray primer and then in gloss black enamel, and baked after each dipping.

Units finished in this way have withstood continuous exposure to the weather for several years without showing any signs of deterioration except a slight dulling of the finish.

Graining and Other Operations

Stampings to be grained are cleaned and bonderized, as previously outlined. The primer used in this case is a semi-synthetic enamel, which air-dries dust-free in a few minutes. Baking is necessary to develop the full durability of this primer, but this need not be done until after the graining color has been applied, thus

saving one baking operation. Allow primer to dry one hour. Sand lightly. Daub on dark stain roughly with a rag. Spray on mist coat of clear lacquer. Apply grain. Bake one hour at 200°F. Spray on a flat top coat varnish, and bake this one hour at 275°F.

The grain effect thus produced has a depth and shading that closely resembles natural wood.

Clean Factories

When dirt and grime were everywhere
The passing public did not care;
But now with restaurants that shine,
Where clean aseptic folks may dine,
Wise business men who see the trends,
Pay highest wages, dividends,
Keep factories as clean and neat
As places where they like to eat.
The hag that typifies disorder
Is out of date—we can't afford her!

ONE LESSON of this mechanical age is the economy of order. The production line is not only planned and timed to split seconds; it is rigorously purged of things out of place. Even slight disorder sends the cost curve skyward. The polished interior of the best factories may seem a luxury to catch the eye of visitors—rather, it is the condition and the symbol of thrift. The ideal is to lose no time, no motion, to make everything count for the objective in hand.

As factory housekeeping approaches the standard of hospital cleanliness, there enters a pride of workmanship, the satisfaction in doing a first-class job which has its useful by-products in many ways. With a high standard of housekeeping, operators are less likely to be satisfied with mechanical imperfections. They begin to appreciate the value of substituting instruments of measurement for guess-work. All these make for better products, satisfied customers, and more stable incomes for workers.—Silicate P's & Q's.

Exhibit of Metal Finishes

The Roxalin Flexible Lacquer Co., Inc., Elizabeth, N. J., has set up a striking exhibit at Metals & Plastics Bureau, International Building, Rockefeller Center, New York City.

Their booth embodies an exhibit of finishes, lacquers, enamels and synthetics for metal, wood and other bases. A group of illustrations show a "twisting and bending" test for lacquers; also photos of the Trail Blazer, their salesman on wheels, carrying more than 200 samples of products finished with their materials. They also show steel tubes

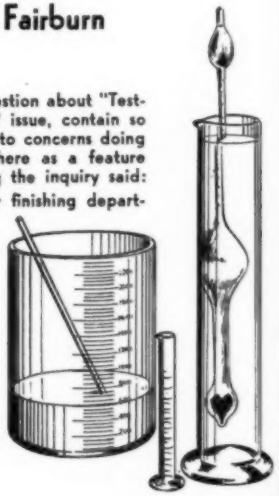
coated with Roxalin flexible finishes which the visitor is invited to pick up and bang together to prove that the finish will not chip, flake or peel.

A "live" feature of the exhibit is a revolving four-sided drum which can be set in motion by the means of a switch. This drum shows four outstanding Roxalin products.

Conveniently at hand is a dispenser from which the visitor can pick packets containing various finishes on metal strips for twisting, bending and fingernail tests.

Testing Finishing Materials

by Greggs Phillips and R. J. Fairburn



Editor's Note: Two additional replies to a question about "Testing Finishes," published in the September 1937 issue, contain so much practical information, which is applicable to concerns doing metal finishing, that we are presenting them here as a feature article of general interest. The concern making the inquiry said:

"We are putting a testing laboratory in our finishing department and believe you can give us valuable service. We wish to include a salt-water-solution test, a 1% to 5% sodium hydroxide test, and an infra-red ray test; also some practical abrasion testing equipment most of which will be used on enamels, such as coatings for license plates, road markers, etc.

"To be specific, can you suggest a charted form to follow along this line which will give us satisfactory assurance relative to the durability we can expect from materials built for such purposes?"

In reply Mr. Greggs Phillips says:

WITH THE exception of equipment for ultraviolet and infra-red ray tests, I am sure this concern can devise most of their own apparatus for testing various enamel coatings to be used on license plates and road markers, and with an ingenious laboratory man they could make up suitable equipment for ray-testing . . . . The ray-testing equipment would consist of a suitable light source, such as a mercury vapor lamp, set into a cabinet of sheet metal.

My experience has been that there is very little available in the way of standard equipment for laboratory testing, and I believe the reason for this is that each manufacturer has individual ideas on the subject of testing; therefore, special devices usually serve the purpose satisfactorily in those places where they are employed. I presume the company making this inquiry has individual ideas on setting up testing equipment, and because of this it is difficult for me to recommend the exact dimensions of equipment and procedure for testing.

Salt Water Tests

The size of the salt water and sodium hydroxide baths mentioned will depend upon two things: First, the size of the test panels;

and second, the number of test panels to be run at one time. I suggest that they use test panels measuring about 4x8-in. or 5x9-in. If the panels are prepared by spray application, some means might be taken to seal the edges; otherwise salt solution and alkali might work its way under the edges of the test specimens, thus producing an irrational failure.

Durability; Performance

In regard to charted data and relation to expected durability of materials so tested, there is, as far as I know, no reliably accurate information. There are many reasons for this, but the principal one is that test data of such apparatus necessarily has to be correlated with actual durability performance of the materials from which the test data was obtained. Facing this fact, the estimated durability of some new finish would be, at best, a very approximate figure if based on test data of the new finish. In other words if "Finish A" is known to give about 12 months suitable exterior durability as against 60 hours submersion in salt water, to produce a failure, it does not necessarily follow that "Finish B," which withstands 90 hours salt submersion, would have an estimated exterior durability of 18 months.

Undoubtedly the company knows pretty well the durability of the finish they have been using, or they have a fair idea of the life of some new finish they are contemplating for adoption. Their testing program of finish durability acceptance, I should say, will necessarily have to start on the finishes whose field durabilities are a known factor, with the test data correlated against known field performances. Of course, durability will probably not be the one and only factor responsible for the decision, as durability will have to be weighed in balance against factors of economic utility. Certainly there would be no advantage in paying a premium for durability far in excess of the life of the finished article.

Abrasion Test

I do not mean to overlook the abrasion test which the inquirer refers to. Equipment for this test is not at all complicated; it would require merely a sheet of sandpaper or emery cloth weighted so it will bear down on the test panel, and so arranged with a connecting rod and crank that the abrasive material will pass back and forth over the specimen. A revolution counter attached to the crank will give the immediate answer as to how many passes are required to wear the finish down to the bare metal.

The following is by R. J. Fairburn:

In arriving at a practical method of selecting finishing materials for a specific purpose, it is usual to ask reputable manufacturers in your territory to submit samples and then, by a process of elimination, find the one best suited. I have seen no practical chart that would show just how long a finish should stand up under each test.

The salt-spray test is often used for license-plate enamels and other finishes that will encounter salt or salt air. A 5% solution will cause most enamels to break down quite rapidly. Finished panels may be partially immersed in the solution, in which

case a break-down will occur at the water line. Another method is to suspend panels in a cabinet and spray the salt solution into the cabinet (directly on the panel or otherwise) by means of spray nozzles.

A 5% solution of sodium hydroxide will also break down an enamel quite rapidly. In this case, a drop of the solution may be placed on each panel and the break-down time compared. Ordinary laundry soap may be used for this test, but it is practical only for laundry-machine finishes or for articles that will encounter soap in use.

Various apparatus are available for making the ultraviolet ray test. Direct sunlight may be used, but this is a slow test. The "Eveready Accelerated Testing Unit Model X-1," made by National Carbon Co., Inc., Cleveland, Ohio, is one piece of apparatus that will give an accelerated break-down.

Toughness; Adhesion; Flexibility

Scratch tests and bend tests offer practical methods for testing toughness, adhesion and flexibility. If a finish "flinders" (flys in all directions) when scratched or bent around a small radius, it is brittle. If it scratches off in a long ribbon, it is not brittle. The ease with which it is scratched off indicates how tough it is.

You would probably find much valuable information in a volume titled "Physical and Practical Examination of Paints, Lacquers and Varnishes" by Henry A. Gardner, Director, Institute of Paint and Varnish Research, 2201 New York Ave. N. W., New York, N. Y. This book gives detailed information regarding all kinds of finishing material tests.

May I suggest that any test you make be confined to an acceleration of an actual condition that the finish will encounter in use. Otherwise, the paint manufacturer may be asked to build qualities into his finish that will needlessly increase the cost.

Alcohol, iodine, fruit juices, food acids, etc., cause most finishes to breakdown quite rapidly. If the finish will encounter these materials in use, it should resist them. Otherwise resistance to them is of no value. Sometimes the paint formulators must rob a material of certain good qualities in order to make it resist certain things. If the finish will not actually encounter these things, it might be better for the job in hand to have the good qualities that were sacrificed.

If I were selecting an enamel for automobile license plates, my first test would be for toughness and adhesion. Will it chip when hit by a pebble or where the screws hold the plate in place? Is it brittle? The plate will not be bent, unless by accident, so flexibility is not of major importance.

Other Important Tests

Next, will it fade rapidly? An ultraviolet ray test will tell.

A cycle in the weatherometer will show how well it will stand up in alternate heat, cold, sun, rain, etc.

Since salt is used to melt ice on pavement, a salt spray test is practical. You often see unsightly license plates because this one requirement was neglected.

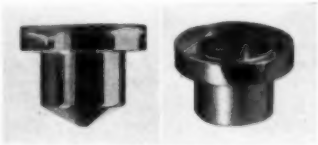
The group of tests just mentioned should be adequate for this particular requirement. Each re-

quirement suggests its own group of tests.

Your suppliers of finishing materials are familiar with practical tests for each requirement. Do not hesitate to consult them. They will be glad to share their experiences with you. This is a part of their regular service.

Ford Viscosity Cup

INASMUCH as many readers have inquired about instruments for measuring the viscosity of finishing materials, and have noticed mention of the Ford viscosity cup in various articles, we



Two views of the Ford cup.

feel that the accompanying item and pictures recently sent in by The Vol-U-Meter Co., 75 Wilbury Place, Buffalo, N. Y., are timely and of interest, even though the Ford cup is not particularly new. According to the information:

These cups are made of cast bronze and can be supplied in natural buffed or polished chromium finish. All that is required for viscosity determinations is a Ford cup, a stop watch and a sample of liquid. The cup is mounted level in a ring stand and, after placing a finger over the opening in the bottom, the cup is filled to overflowing. A stop watch is started when removing the finger, and the elapsed time is measured for material to run completely from the cup.

Parker Rust-Proof Enlarges Detroit Plant

To provide additional office and laboratory facilities the Parker Rust-Proof Co., Detroit, Mich., is building an addition to its present building—a 2-story fireproof structure which will double its former frontage. This addition is required to provide facilities for an increased volume of business and to give more room for inspection and testing laboratories. It will make the Parker laboratory probably the largest in the country devoted exclusively to problems of rust control and prevention. The company employs 35 graduate chemists.

In the testing department, Parker chemists render a technical advisory service to all customers and maintain a constant chemical control over the installations of their clients. This service touches practically every industry dealing with metals.

In an effort to constantly improve the Parker processes to adapt them to changing conditions, Parker chemists have succeeded in cutting the processing time from an hour or more to a matter of seconds, so as to make the process available for mass production in the automotive, refrigeration, air conditioning, building equipment and other industries. At the same time, they have been pushing forward in new avenues, chief among them being the recent development of processing methods for applying a paint-holding and corrosion, resisting coating to zinc surfaces.

Equipment Catalogs by Binks

The Binks Mfg. Co., 3120 Carroll Ave., Chicago, Ill., announces the publication of an entirely new set of catalogs containing the latest engineering data and information on their line of water-cooling towers and industrial spray nozzles.

The complete water cooling catalog contains a 16-page bulletin on Binks Type K induced-draft spray-cooling towers (Bulletin No. 190), a 12-page bulletin on Binks Type FD forced-draft cooling towers (Bulletin No. 170), a 16-page bulletin on Type R atmospheric spray-cooling towers (Bulletin No. 160), and a 24-page catalog on Binks line of industrial spray nozzles for water cooling, air washing, air conditioning, etc.

All bulletins are profusely illustrated, and contain valuable engineering data and other information of interest. Copies of one or all of these bulletins may be obtained from this company upon request.

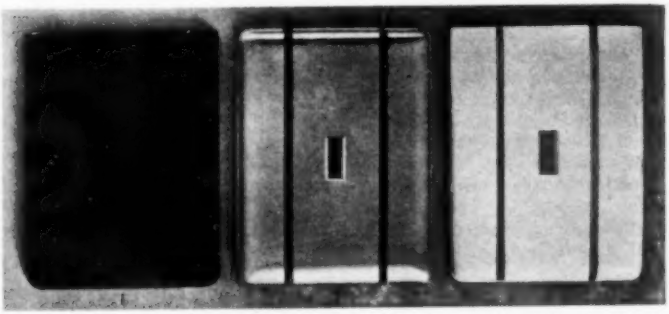


Fig. 1—The fronts of three cigarette cases made of pressed metal and finished. No. 1 is finished in two tones of brown and has a 1-in. center strip of butt walnut reproduction. No. 2 is satin gold except the signet which is brightly polished gold. The stripes are red. No. 3 is white enamel . . . with bright gold stripes and signet.

Finishing Cigarette Cases

by L. E. Dexter

IN THIS ARTICLE I will take up the finishing of cigarette cases. This work follows along the same lines as finishing vanity cases, about which I wrote in considerable detail in an article published in the August 1937 issue of this magazine.

Referring to the three cigarette cases illustrated above, each one measuring 3x4-in., these are made of sheet metal. Each one is blanked and formed to shape on a press.

The metal is usually 20-gauge in thickness. Those cases that are to show areas in "gold" are made of "low" brass which closely resembles yellow gold in color. Cases that are to be completely covered with lacquer-enamel can be made of either brass or tinned metal.

As I pointed out in my article in the August issue, work of this kind must be very thoroughly cleaned to prepare it for the application of finish coatings. The cleaning must be so thorough that it even extends into the microscopic pores of the metal, so that no trace of grease, oil or chemical material remains.

Cigarette case No. 1 is finished in two tones of brown with a 1-in. stripe of imitation butt walnut extending lengthwise through the center. Since this particular case will be completely covered with lacquer enamel, it can be made of either sheet brass or tinned sheet

metal. The cases are blanked and formed to shape on a press; then they are run through a degreaser, electric cleaner, hot water rinse and finally dried in sawdust, as explained in detail in my article about finishing vanity cases.

When the cases are thoroughly clean and dry, the operator puts about 12 of them on a portable screen which he places on the turntable in the spray booth. They are usually positioned on the screen in three rows of four each, with about 2-in. of space separating adjoining cases. Then the operator carefully sprays all 12 cases with a coat of tan-colored lacquer-enamel, spraying from front to back. When all 12 cases are sprayed in this manner, he turns the screen and turntable one-fourth the way around and again sprays from front to back. This procedure is repeated until the cases have been sprayed four ways, or from all four edges, each time from front to back. This gives the cases a fairly heavy first coat of tan-colored lacquer-enamel.

The coat of darker brown lacquer-enamel to follow is sprayed through a maze of fine kinky wires extending across an open sheet-metal stencil frame similar to what is shown in Fig. 2. To make the kinky wire part of this stencil, we take about ½-lb. of fine wire, straighten it out, then put kinks in the wire to make any kind of design that may be desired. Then we shape this maze of wire to the case and solder it in several places to the edges of a flat open stencil frame, so it will remain in position.

The spray operator holds the half cigarette case in his left hand, places it back of the stencil (which is supported in a convenient position by the stencil holder shown in Fig. 3) holds the spray gun in his right hand, and sprays the darker "fog" coat through this kinky-wire stencil. The brown fog coat is a "thinned brown," prepared by mixing one part of brown enamel with three parts of thinner. Spraying the dark brown through kinky wire over the solid tan color gives the two-toned mottled effect.

There should be at least two of these kinky wire stencils in service, so that when one becomes too heavily coated with lacquer enamel it can be withdrawn and placed in a pan of ethyl acetate to soak for easy cleaning, while the other clean stencil replaces it.

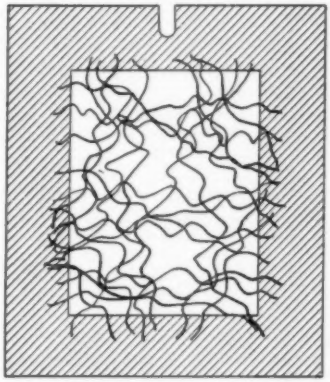


Fig. 2—The stencil for producing a mottled effect on cigarette case No. 1 is an open frame over which is soldered a maze of kinky wires.

The 1-in. strip of imitation butt walnut wood is put on by a transfer process. We get these reproductions of the natural wood in paper sheets measuring about 10x12-in. We cut them (with a

paper cutter) into strips 1-in. wide and of the right length to extend from one end of the cigarette case to the other. The transfer strips are placed in a pan of water to soak. In a smaller pan we have a solution of welding cement made up in the proportion of one part welding cement to three parts of water. The operator dips his fingers into the welding solution and wets the surface of the case where it is going to be covered by the transfer. Then he takes a strip of the transfer material out of the water, carefully positions it on the case and presses it down with a rubber squeegee which he rubs back and forth to smooth it out perfectly and remove any possible air bubbles. Then he peels off the paper backing and allows the transfered reproduction to dry about four hours.

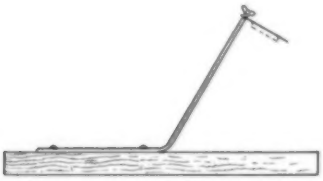


Fig. 3—Side view of the stencil holder mounted on bench or table in spray booth. Stencils are attached by a thumbscrew. The cigarette case to be sprayed is held back of stencil. See dotted lines.

Following this period of drying, the cases are sprayed with a top coat of thin clear lacquer. The brand of lacquer we use is thinned in the proportion of six parts of lacquer to four parts of thinner. When spraying the top coat of clear lacquer we cut down the lacquer flow so it will just about "fog" the surface. About one-half hour after spraying on this fog coat we spray on a full wet coat of clear lacquer, spraying four ways as previously described. About an hour later we spray on the second full wet coat.

The final work on a completely lacquer-enameled cigarette case consists of light sanding and polishing — both operations being done the day following enamel spraying. Just before polishing, we go over every lacquer-enameled surface lightly with very fine sandpaper—No. 8/0 or No. 280 garnet sandpaper. The workman makes just a few light strokes from back to front. If there are a few specks on the work, this light sanding removes them; and if there is any trace of a slight orange peel effect, this sanding helps to remove or subdue it—without leaving visible scratches.

Our polishing wheels are made up of discs of flannel cloth 10 or 12-in. in diameter. These cloth discs are built up to about 4-in. in width. The polishing wheels rotate 1800-r.p.m. We use a polishing compound that doesn't leave any trace of grease or other residue on the surface of the cases. In polishing these lacquer-enameled cases, it is important to move the case with the direction of the predominant design or lacquered edges.

The last thing that is done, after the cases are all put together and in the packing room, is to polish them lightly by hand. In the case of white or light-tinted enamel surfaces, this polishing may call for the use of a little "cleaner-polisher," followed by wiping with a clean flannel cloth. However, in most cases, a quick wipe-off with a dry flannel cloth is sufficient for the purpose.

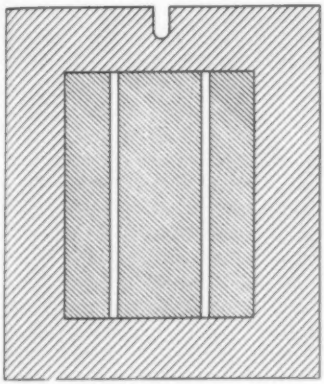


Fig. 4—Stencil for cigarette case No. 2 (see Fig. 1). The stripes are sprayed through two narrow slots.

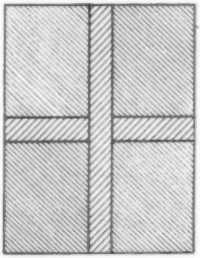


Fig. 5—Front of cigarette case that has been quartered and enlarged so it will serve as a stencil for finishing other cigarette case fronts (See Fig. 4).

The cigarette case marked No. 2 looks like a satin luster gold with a bright luster signet in gold and two red stripes. When these cases come to the lacquer room they are polished on a polishing wheel on which satin finish compound is used. This operation gives the outside of the case its satin effect.

To give the small signet its smooth high polish, it is polished separately by shielding out all of the remaining area of the case. The shield is merely another half of a case from which the signet part is carefully and accurately cut out. When this sheild is held over the case to be signet polished, only the signet will be touched by the polishing wheel. Following these two polishing operations, we pass the cases through a degreaser, electric cleaner, warm water rinse, and dry them in sawdust. We spray on two coats of top coat lacquer, spraying the cases on a screen and spraying each coat four ways as described. previously.

Now the cases are ready for the red stripes. To apply these red stripes we use a stencil like that shown in Fig. 4—wherein the outside edges of a formed case are soldered to the inside edges of a flat sheet-metal frame and then slotted for the two red stripes.

The formed half case or shell that is to serve as a striping stencil must be enlarged slightly so it will easily fit over the formed cases being striped with a spray gun. Here's how we do it. Taking the formed shell that is to serve as a stencil for spraying the other cases, we saw it into four equal quarters. Then we lay these four quarters in position over a regular shell and clamp them in place temporarily. The saw-cut edges, of course, will not quite meet, therefore we place a patch or overlay over them. We lay a thin stripe of $\frac{3}{16}$-in. brass over each of the open saw cuts, and solder same into position. The slightly enlarged shell then has a full-size brass cross soldered over it as shown in Fig. 5. This patched shell, in turn, is soldered to the

opening of a suitable sized flat sheet of metal, so it looks like Fig. 4. Finally, the slits or narrow slots are cut to permit the red stripes to be sprayed through the stencil.

The stencil is placed in a holder similar to the one shown in Fig. 3, and we are ready to spray the red lacquer-enamel stripes through it. We spray one coat of red through the stencil. The red must be fairly heavy for this job. If we have a close-fitting stencil, we will get clean-cut stripes. If the stripes have ragged edges they can be cleaned up by a little

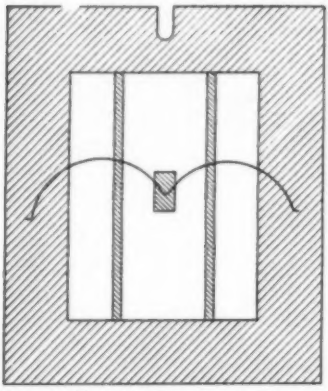


Fig. 6—Here is the stencil through which the white enamel is sprayed to finish cigarette case No. 3, Fig. 1.

skillfull handwork, using a small piece of cloth dipped in benzol and carefully rubbing the edges to straighten them. After the striping operation the cases are allowed to dry overnight; and then polished the same as other cases.

Cigarette cases like that identified as No. 3 in Fig. 1 have a white enameled finish with two gold stripes and a raised signet shield or island in the center. All of the gold (low brass which looks like gold) is smoothly polished. Following the usual preliminary operations the cases are "cut-down" or "grease buffed" and then gloss polished. Then they are run through degreasing, electric cleaning, rinsing and dry-sawdust cleaning operations, after which they are ready for spraying. Two coats of clear lacquer are sprayed on, as described for case No. 2.

The stencils used for shielding the gold stripes and raised signet are the same as stencils for case No. 2, except that the final design is different, see Fig. 6. Through this stencil we spray two coats of white lacquer-enamel, each coat being heavy enough in consistency so the material will not run under the stencil. After spraying and drying, the cleaning up and polishing operations are the same as for other cases.

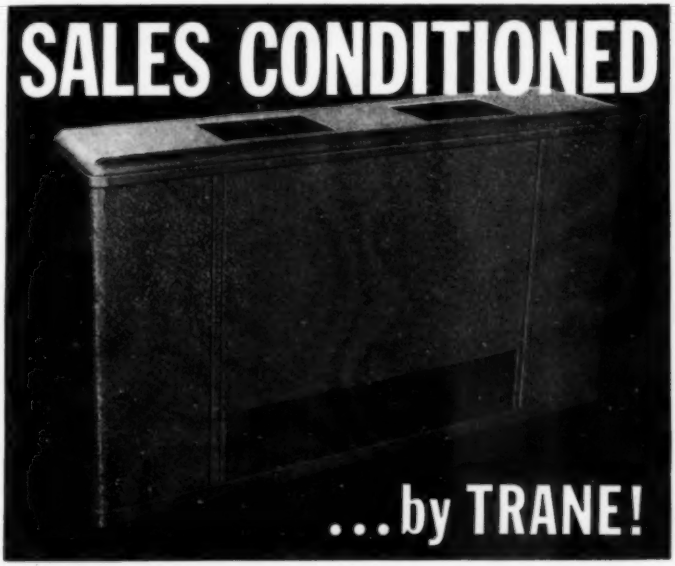
Detroit Rex Products Co. Occupies New Building

Construction of a large, modern manufacturing building which will provide the Detroit Rex Products Co., of 13005 Hillview Ave., Detroit, Mich., with approximately 30,000-sq. ft. of additional floor space has been completed by the Austin Co.

The increased demand for solvent degreasing machines and degreasing solvents has made this expansion program necessary, according to R. A. Emmett, President. This is the second time within the period of a year that manufacturing facilities have been enlarged to meet the increased demand for this company's products.

The new plant conforms in general to the present building to which it is joined by a second floor bridge. The new fireproof building is 100-ft. wide, and has a second story 40-ft. deep extending across the front of the structure.

SALES CONDITIONED



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COVER THE EARTH

CHEMICAL ENGINEER SUMMARIZES
A TEN-YEAR EXPERIENCE IN

Painting Storage Battery Containers—I

by Alvin Fuhrmann
Chemical Engineer
National Battery Co.
American Container Div.

THE PRESENT highly competitive field of merchandizing places an important burden on the design and surface appearance of any product. The impact of this demand for an improvement in storage battery container appearance became evident in 1927. At first, only those containers with integrally molded medallions were given consideration. The problem was one of finding a suitable contrasting color for container application.

Preliminary experience indicated that a fast air-dry material was highly desirable. This eliminated the long-drying type of natural gum-oil varnish, and resulted in the selection of a straight nitro-cellulose-base lacquer. Investigation of methods of application also revealed that hand roller-coating the relief surface of the medallion was superior to the use of a stenciled screen.

However, it was immediately obvious that adhesion of the lacquer to the container base, and resistance of the pigmented film to contact with sulfuric acid were relatively poor. Efforts to improve these characteristics of adhesion and acid-resistance through selection of different materials were not entirely successful.

The experience acquired in this search indicated the need of considering a combination of important factors and an established procedure for testing if the selection of a finishing material were to result in satisfactory service.

Desired Film Characteristics

Desired film properties are outlined in the order of their importance as follows:

1) Resistance to sulfuric acid.
2) Adhesion to container base.
3) Ease of application.
4) Drying time.
5) Gloss.

It is generally more convenient to paint the container before battery assembly. This means the applied film must stand all contact with acid during battery production, shipment and storage. The value of a brilliant color in the container warehouse is entirely lost if the customer cannot see it on the dealer's shelf.

Similarly, film adhesion is almost equally important, since

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again handling and shipment from the container warehouse to the dealer's shelf is a severe test, particularly when painted areas in relief are exposed to adjacent rubbing surfaces.

Method of application is dependent upon design of the area being painted. Container medallions in relief are best coated by means of a hand roller, while depressed areas are either coated by means of a spray gun or hand striper. Regardless of method, the finishing material must lend itself to the particular process used. Equipment and skill in handling naturally have a bearing upon the quality of finished work, but it is first necessary to obtain a product which, when handled properly, will provide a satisfactory film without increasing the difficulties of application.

Drying time is important from the standpoint of storage space, shipping requirements and labor costs.

Gloss is a factor in sales appeal. Usually a highly reflective surface, which is in sharp color contrast with the black container base, is more apt to attract customer attention.

This realization of the need of certain film characteristics developed rapidly. Only after considerable work had been done did it become apparent that the search for materials meeting these specifications would be a continuous job. It became necessary to obtain samples of the many types of materials available and through comparative tests, selecting those which possessed outstanding qualities.

Paint Film Tests

In order to thoroughly cover the field, periodic contact was made with every leading supplier of industrial finishing materials. A routine method of test procedure was evolved which is still followed today.

Samples received from the supplier are first examined for deposition of pigment. Occasionally, material received will jell upon standing, which indicates a lack of compatability of pigment and vehicle. After thorough mixing, container test sections are hand coated by means of a small camel's hair brush in order to observe covering-power and flow characteristics. Reducers are used when necessary.

The period for air-drying at normal room temperature is then timed. Present specifications call for a film to be dry to the touch in three to four hours, with sufficient dryness for shipping after a period of 10 to 12 hours.

The air-dry film is next checked for color match and gloss. This cannot be done accurately by observation of the wet color. Color comparators can be used for this work if necessary.

A film apparently air-dry, particularly if it is a synthetic, will still contain higher boiling solvent fractions or drying oils which usually require several weeks of normal ageing before ultimate film hardness is obtained. For test purposes this period is reduced by further air-drying in a thermostatically-controlled oven equipped with forced air-circulation maintained at a temperature of 125°F. for a period of 48 hours.

Tests for Adhesion

Samples are then removed, cooled to normal room temperature and tested for adhesion. Much has been written concern-

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ing methods of checking the adhesion of an applied film; however, the most reliable and simplest procedure is the scratch test. A pointed blade is used to scratch the film, and the depth of cut must extend to the base material. In comparative work, the individual conducting the tests will soon develop an accurate method of rating film adhesion. A reliable check on this characteristic can also be obtained by cross-hatching a small area of the film with close parallel lines. Lack of adhesion can easily be detected by loosened film particles.

Samples used for the adhesion test are stored for future reference, and duplicate pieces dried in an identical manner are then tested for acid resistance. This consists of immersion in a bath of sulfuric acid of 1.3 specific gravity for a period of 24 hours at a controlled oven temperature of 150°F. Upon removal from the bath, samples are carefully examined for resistance to wetting. Those films which possess a high surface tension at the solid-liquid interface usually lead in acid resistance. A comparative rating is made at this point and recorded as "Acid resistance before concentration."

These same samples are then immediately returned to the oven without further immersion, and the adhering surface layer of acid is permitted to concentrate at the established oven temperature of 150°F. for an additional period of 30 minutes, after which samples are again removed for comparative rating termed "Acid resistance after concentration." This is where the massacre usually takes place. An outstanding material up to this point will come out of the concentration period so badly discolored that the original color is indistinguishable.

Methods of Application

Final rating is made by using the original wet color samples for production methods of application. It is preferable to obtain a material which can be used without difficulty for the three operations of spraying, roller coating and striping, although this is not always possible.

Finally, all listed ratings are compared, and those materials which are outstanding in all characteristics, with particular emphasis placed on adhesion and acid resistance, are selected for production use.

This method of testing continually resulted in such a high percentage of failures that it next became necessary to rate the quality of finish as effected by the various ingredients used by finishing material manufacturers. The initiative was assumed in demanding that the full range of available ingredients be used. The resultant observations were particularly interesting, and will be described under the group classifications of vehicles, pigments and solvents.

Note: The second installment of this 3-part article, to appear next month, will take up the characteristics of various paint or finish vehicles including both cellulose-base and synthetic-base materials for use in painting storage battery containers.

Your customers look at the color and finish of your products first—and then judge other merits of the product accordingly. Take no chances with dull color or a cheap finish.

Consider Lacquer Prices

AS BASED ON THEIR SOLIDS CONTENT

by C. J. Branolke

SOME TIME ago I called on a finishing foreman and learned that the amount of clear and dull lacquers he used in a week was almost five drums. I asked what specifications he adhered to in the purchase of this lacquer. To my surprise he admitted that he had never considered this to be essential, as he had used the same lacquer for years with entire satisfaction.

I am wondering if, in analyzing the requirements of the finishing department, the matter of specifications is forgotten in the everyday need for cutting costs?

Let us assume we have been using a certain clear and flat lacquer for a number of years. Then, one day, a representative from the "H. D. Lacquer Co." calls and quotes a very attractive price offer on a similar quality of lacquer. If the quality is the same, we are much interested, but "how can the quality be the same at a lower price?" we ask him. Due to "large volume purchases, plant economies, low margin of profit and split commissions," he explains, in justifying the difference in his price and ours.

Specifications are not mentioned—total solids or non-volatile, viscosity before and after reduction—these are not an issue. The apparent savings are quite clear, so a trial order is placed for a test run to determine "mileage per gallon."

It is difficult to see the difference a few percent of solids makes in a small run of units, and we will possibly admit the finished product looks almost the same as our regular goods. But, over a period of weeks, it is very probable that we are spending more money per gallon than we were on our regular materials.

Comparing Solid Content of Different Lacquers

Let us assume our regular goods contain 27% of solids, and we have been reducing in the ratio of 5/2—five gallons of lacquer to two gallons of lacquer thinner. Calculating the solid content at reduced body, we obtain 19¼%. (27×5 divided by 7.)

Now let us assume we have run a solids determination on the new lacquer and find it contains only 22% of solids at full body. If we reduce this lacquer in the same ratio, namely 5/2, the solids at the gun would be 15.71%.

Three coats of the 19¼% lacquer (at the gun) will result in a total of 57¾% of solids being deposited on the work, for our present schedule. But three coats

of the 15.71% lacquer (at the gun) will result in only 47.13% of solids being deposited on the work with the same amount of labor. The difference of 10.62% of solids in favor of our regular goods amounts to practically one extra coat, compared to the new material.

We say this cannot be possible without a sharp degree of contrast between the two different finishes, but if we will examine the viscosities of the two materials at spraying consistencies, we can readily understand how this large difference can be made to approach the fullness of the high-solid lacquer. The degree of viscosity is easily controlled by the addition of high-viscosity nitrocellulose to meet the viscosity of the higher-solids lacquer, so a heavier film will be deposited when applied by spraying.

Checking Viscosity of Lacquer

If a Ford cup is used to check the viscosities before and after reduction, any slight difference will be readily seen—by a thinner viscosity for a lower-solid lacquer, or a higher viscosity for the same solids—which indicates more material being used at less solids.

If a lower-solid lacquer is sprayed at the same viscosity as the high solid lacquer, then we know we will use more lacquer per given amount of work. If we purchase a staple item we have no fear of obtaining what we can see, but in the case of lacquer, why stop at the Door of Faith. See that your specifications are adhered to.

Set up your own specifications when buying lacquer materials. Your supplier will run a solids determination of any lacquer. Your own code numbers will place his materials among the unknown. The exact viscosities can be maintained by a small investment in a well known make of viscosity cup.

You save money by spraying at a higher solids content, because the thinners only serve as a carrier for the nitrocellulose, gum and plasticizer; and they always leave the film by evaporation. If you have ascertained the proper viscosity at the gun and specify a high-solids lacquer at this viscosity, then it is possible from the above to spray at 27% of solids and save two gallons of thinner for every five gallons of lacquer; also the labor of applying additional coats. This saving per gallon of lacquer consumed will allow you to pay a nice premium over your old price and still save 10 to 15 cents per gallon.

Cost per Unit of Lacquer Finish

Often I hear the old argument: "We cannot afford to pay more than $— for our lacquers. This item is cheap and will only stand such and such a cost schedule."

If we consider a 22% solids lacquer that is reduced to 15.71% at the gun, and it is necessary to apply two coats for our finishing schedule, we can save the labor of one spraying application by applying one coat of a 27% solid lacquer, and we will have a better finish from the quality standpoint and we will finish more units per gallon of lacquer. Of course, the 4% difference in solids would pass inspection, no doubt, on these cheaper items.

The main point I would like to drive home is the need for more efficient methods in determining what is a better buy, and being able to control that purchase from

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time to time. If you can point your finger at a certain cost and say with confidence: "We are paying less than six cents per unit of solids at a certain viscosity," then you can always be sure, before a test run of any new materials, that the results of the test will depend on the quality of the goods from the durability standpoint alone, and not on a number of variables of which you are in doubt.

The claim is that at least a third of the lacquer film is rubbed away in surfacing and polishing. Also, a great loss occurs by evaporation which neither the manufacturer or the finisher can control. In view of these fixed conditions, it behooves one to make the proper savings by a little scientific research, and not by hammering down prices which tend to weaken quality more than the few cents reduction. To reduce the costs from the manufacturer's standpoint is a problem. He cannot do so and retain the qualities that will stand the rigid requirements of today for better polishing, better build, elasticity, toughness and cold-check resistance.

Automotive Body Designer Joins Howard Ketcham, Inc.

To broaden his usefulness to fleet owners, motor coach lines and builders of coaches and trucks, Mr. James J. St. Croix has moved his headquarters to New York where he is associated with the color engineering firm of Howard Ketcham, Inc. As a qualified automotive designer, Mr. St. Croix joins the architectural and color engineering talent in this organization to serve transportation on rail and highway, in the air and on water.

The widely publicized coaches of unique design patronized by millions of visitors at Chicago's Century of Progress Exposition were designed by Mr. St. Croix and decorated under his immediate supervision.

As body engineer for two of the largest builders of coaches and special bodies for special chassis, including General Motors Trucks and Coaches for more than 17 years, Mr. St. Croix has indeed contributed tremendously to the present modernized coaches and trucks that compare in line and color with latest model passenger cars.

He designed special bodies for Rolls-Royce, Lancia, Isotta Fraschini, Dusenberg and other chassis.

Static Electricity; Accidents

Simple safeguards to prevent accumulation of static electricity or to discharge such accumulations harmlessly will eliminate many serious industrial fire hazards, delegates to the fire prevention section of the National Safety Congress at Kansas City were told last month by E. E. Turkington, engineer for the Associated Factory Mutual Fire Insurance Companies of Boston.

"Static electricity is the cause of many fires and explosions, some of which result in loss of life as well as property," Mr. Turkington declared.

"The fire may be the result of actual ignition of combustible material by static sparks. Or the charges, too small to be a fire hazard in themselves, may indirectly result in fire by causing finely divided stock to adhere to parts of a machine to such an extent that excessive mechanical friction results.

"It is not possible to prevent the generation, but it is possible to prevent the accumulation of such quantity and potential that sparks may result. This can be accomplished by humidification, bonding and grounding, ionization, or a combination of these methods."

In industries where humidification is permissible, a relative humidity of 50% is recommended as a safeguard against accumulations of static, as the surface conductivity of many materials is much greater in an atmosphere of high humidity.

Carefully grounding of metal objects and machines will discharge static properly. Grounding to water pipes or to metal plates buried in moist earth is suggested.

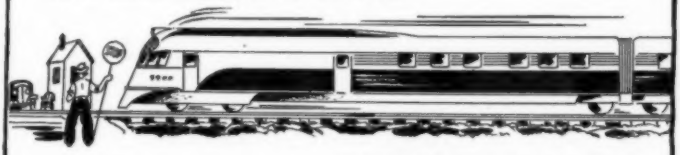
Particular attention should be given to the handling and storage of flammable liquids to prevent disastrous sparks. Proper grounding and bonding should be employed to include storage tanks, tank cars, pipe lines, mixers and even portable containers.

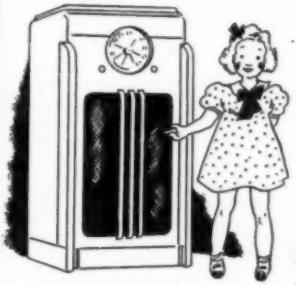
WHO KNOWS?

—WHOSE PROBLEM DUM DUM WILL SOLVE NEXT

Every day some new problem of sealing, sticking or silencing is solved by DUM DUM. You'll find a DUM DUM to meet every industrial production requirement. But be sure you get genuine DUM DUM.

ONLY ARCO MAKES DUM DUM





RADIO DUM DUM—The decorative cloth in the loud speaker grills *sticks* on and *stays* on with DUM DUM.

STREAMLINERS—When modern streamliners streak over the rails, the roar is absorbed by sound deadening pads cemented with DUM DUM.

ALL METAL BATH—While milady dampens her beautiful self—DUM DUM dampens the vibration.

SAFETY GLASS—DUM DUM seals the edge of multiple plate safety glass from moisture and prevents discoloration of the laminated cellulose.

WILL IT BE YOURS?

Will your problem—(of calking, sealing, glazing, deadening or cementing)—be the next to be solved by DUM DUM? Write us your requirements. Our laboratory will be glad to help.

THE ARCO COMPANY
CLEVELAND-LOS ANGELES

LACQUERS • ENAMELS • SYNTHETICS

Waterproof Base

FOR CANVAS AND DUCK

by George A. Endom
Engeom Process Corp.

With this short article entitled, "Waterproof Base for Canvas and Duck", I am sending several sample pieces which were treated in the manner outlined. The lack of gloss on the samples coated with lacquer is in the lacquer itself (it is Navy Spec. L-12) and does not mean that a gloss would not be obtained if this were desired.

If the sample pieces were allowed to dry for several days and then carefully sanded, and if several succeeding thin coats were applied, a wonderfully-lustered finish would result. This finish is peculiarly adaptable to 2-tone finishing. On the samples enclosed I have not carried the finish beyond the first coat, as my only aim was to secure preservation and durability — not appearance.

The soya-bean oil compound can be purchased from several different concerns and should be requested as similar to U. S. Navy material C47-c, soya-bean oil compound.

George A Endom.

MANY TIMES a finisher finds it necessary to waterproof canvas or cotton duck because of certain conditions or circumstances which may prevent him from purchasing a small quantity suitable for the needs of the job. Some of these instances may be the recovering of a canvas boat, the repairing of a deck, or the waterproofing of a canopy.

Recently I found it necessary to waterproof some shelter-tent material and in addition had to apply a finish coat of color over the waterproofing. The method involved was fairly inexpensive, withstood the standard 12-hour leakage test and was quite presentable in appearance.

Application of Waterproofing

The material was 36-in. wide. One grade was 8-oz. shelter tent material; the second, 12-oz. cotton duck. Length of the piece, 12 yards.

Three gallons of soya-bean oil compound was poured into an ordinary tub and to this was added 1½ gallons of toluol. (The reduction would, of course, be controlled by the viscosity of the soya-bean oil compound.) This mixture was stirred thoroughly and the fabric was placed into the mixture, care being taken to avoid excessive wrinkling. The fabric was allowed to soak two hours.

Two 4-in. rollers of wood were used in the manner of an ordinary clothes wringer; the fabric was carefully run between these roll-

A STRONG *Eye-catcher*

The player who catches the pass and makes the run for a touchdown is the fellow upon whom all eyes are turned. To be sure there are others on the team as good but the crowd is attracted to the sensational . . . So it is with your products . . . There may be others on the market as good but unless they are attractively finished so as to stand out from the rest, they are very often passed by.

Egyptian Finishes . . . Lacquers and Synthetics . . . have been eye catchers for many of the country's best known products for over a half century.

A complete line of standard finishes as well as new and novel effects are offered to the trade. To the manufacturer whose needs are individual, we offer the services of our completely equipped research and experimental laboratories where solving finishing problems is just a part of the daily routine.

We will be glad if you will call us in to discuss your finishing requirements with you.

THE EGYPTIAN LACQUER MFG. CO.
LACQUERS · SYNTHETICS · PAINTS · VARNISHES
ROCKEFELLER CENTER NEW YORK, N.Y.

ers so that all excess compound was removed. In the case of the 12-oz. material it was necessary to run this through the roller three times, increasing the tension after each run. In addition to removing the excess compound these rollers ironed out the wrinkles in the fabric.

After rolling, the fabric was hung over lines to dry, care being taken to avoid any contact between two layers of fabric to prevent their adhering to each other and also to accelerate drying of the compound.

Application of Cover Coats

After allowing the treated fabric to dry for 18 hours, each one of four different pieces was given a different finish. One was sprayed with aluminum varnish; one with navy gray enamel; one with aluminum lacquer, and one with navy gray lacquer. All coats were sprayed in a full wet coat. A slight raise in the nap of the fabric was in evidence, but there was no lifting or poor adhesion noticed.

Brush coats were applied with better appearing results, but two spray coats would give a wonderful appearance.

With a paint, varnish or enamel top coat, this fabric remains wonderfully flexible; it can be creased, folded and wrinkled but will not crack. It can be machine-sewn or hand stitched after coating and has the advantage of not being greasy or oily to handle.

When lacquer is applied as a finish coat it is advisable to only use this material on flat surfaces as it is slightly less flexible than when coated with oil-base top coats. It can, however, be machine-sewn also without checking or cracking.

This treated and coated fabric gives every indication of withstanding outdoor service. I have several pieces exposed to the weather and it seems reasonably certain that it will withstand severe weather conditions.

Chip Proof Black Flexible Lacquer Enamel

A product summary giving the properties of this cellulose type, air-drying, flexible lacquer enamel has been prepared for distribution by the Roxalin Flexible Lacquer Co., Inc., Elizabeth, N. J. The product is available in three lusters; does not chip, flake or peel; stands blanking and forming. Comes ready to spray. Samples of this finish on brass, aluminum, and cold-rolled steel are supplied for test by scratching, bending, etc.

Silk-Screen Process Work

An unusual demonstration in silk-screen process poster and sign work was made last month at the Coleman Lamp and Stove Co., Wichita, Kansas. Bert Zahn, superintendent of the process department of the Sherwin-Williams Co., of Cleveland, Ohio, and a well known national authority on screen process, was the demonstrator and lecturer. Many have read his articles in INDUSTRIAL FINISHING and other magazines. The meeting was of an educational nature, according to the president of the Wichita Display Men's Guild.

Portable Electric Tool Catalog

Catalog No. 38, from Skilsaw, Inc., 3316 Elston Ave., Chicago, Ill., contains 50 interesting and informative pages of illustrations, descriptions and engineering data on portable electric tools and accessories, including grinders, sanders, polishers and blowers for industrial production and maintenance work. Pages are 8½x11-in. bound between red, black and aluminum varnished covers. A very complete and valuable catalog that should be in every industrial reference library.

PROTECTION!

to

Bright Zinc & Cadmium

To retain the beauty and whiteness of bright zinc, a clear protective coating is required.

STANLEY 52B-152 CLEAR LACQUER

has been designed for that purpose and very successfully meets the requirements.

The film produced is—

Colorless
Very Hard
Durable
Of Excellent Adhesion
Economical

For spray or dip application.

STANLEY

THE STANLEY CHEMICAL CO.
EAST BERLIN, CONN.

LACQUERS - SYNTHETICS - ENAMELS - JAPANS

A Subsidiary of THE STANLEY WORKS, NEW BRITIAN, CONN.

What's New . . .

Air-Motored Paint Agitator for Drums

The DeVilbiss Co., Toledo, Ohio, announces a new air-motor drive for agitators built integral in paint drums. The unit consists of a standard air motor and a reduction unit. . . . An efficient and safe method of agitating paint in shipping containers prior to delivery to the material feed system in the finishing department.

Included are two drivers, one for ½-in. square and one for ⅝-in. square on the agitator shaft. These

The unit in position on drum.

drivers are threaded to fit the thread on the drive shaft.

An adapter with 1½-in. and 2½-in. straight male thread, and 1¼-in. female pipe thread to fit the openings in the paint drums is also included.

The unit is extremely portable, and may be transferred from one drum to another in a few moments time; Will operate from a 1-hp. or larger air compressor, dependent upon the speed of agitation required. Speed of the motor is adjustable from 10-r.p.m. up.

New "Speed" Primer

A new synthetic primer for use on metal products that air-dries out of dust in five minutes and, therefore, reduces the rejects due to shop dust and dirt, has been developed by Maas and Waldstein Co., makers of industrial finishes, Newark, N. J.

This new "speed" primer is suitable for use under air-drying lacquer-enamels or baking synthetic enamels, or as a shop coat. It air-dries, or can be force dried or baked, giving a very flexible schedule ranging from two hours at 160°F. to 20 minutes at 275°F. It has good adhesion, excellent building and holdout properties and is easily sanded. It is supplied in many colors for either dipping or spraying.

Wood Veneers Cemented to Steel

Wood veneers, backed up with and permanently cemented to a steel sheet, constitute a new product called Robertson Bonded Metal, just announced by H. H. Robertson Co., 2000 Grant Bldg., Pittsburgh, Pa. Developed through the company's fellowship at the Mellon Institute of Industrial Research, the new product is used for interior walls, elevator cabs, air-conditioning cabinets, bars, furniture, etc., and combines the richness of real wood with the fire-resistance, strength and stability of steel.

"R. B. M." as the new sheet material is called, is available in sheets up to 3x8-ft., and with the steel reinforcement in gauges from 30 to 18, permitting either great stiffness or sufficient flexibility to form the sheets into the small radii and curves used in modern furniture and interior design. The sheets may be cut with metal-cutting tools, stamped, spot-welded, drilled and bent, without damage or separation, and when used for paneled walls and partitions, may be installed without noticeable seams

Paasche

TYPE F706 LARGE SUPERIOR AIRRUBBING MACHINE

Saves Time!

Saves Labor!

Saves Money!

. . on all Rubbing, Polishing, Sanding Operations

Use this reciprocal stroke airrubbing and airsanding machine on any product from finest wood or metal furniture to roughest castings.

Provides superior finishes at lowest costs with wet or dry sandpaper—pumice—emery paper—carborundum blocks—felt—or any abrasive or polishing materials. SEND FOR FREE BULLETIN H2-37.

Ask for a demonstration in your own plant — our engineers will gladly call at any time most convenient to you and without obligation on your part.

Guaranteed Savings — Paasche

Paasche Airbrush Co.

1917 DIVERSEY PARKWAY CHICAGO, ILLINOIS

or joints. Thirty different American and foreign woods are supplied as surface veneers, and fire-resistant insulating cores are cemented to the steel backing to make one-piece partitions.

Reasons for the durability of "R. B. M." are found in the phenolic resin adhesive used for bonding, which is supplied by General Plastics, Inc. Boiling water tests of 12 hours, and alternate 4-hour soaking and 2-hour baking cycles (at 120°F.) repeated 20 times, do not affect either the bond or the surface veneer. Shrinkage, warping and cracking are thereby eliminated, despite extreme humidity or dryness.

Gold Paste

In reference to their gold paste for industrial product decoration, the Edw. C. Ballou Co., 259 W. 14th St., New York, N. Y., writes:

"This is bronze powder which is dispersed into Varnolene to make a paste. The merits of using this material in place of the dry powder are:

"1) It disperses easier in the varnish or lacquer, which takes less time in the mixing.

"2) It produces a smoother and more brilliant finish.

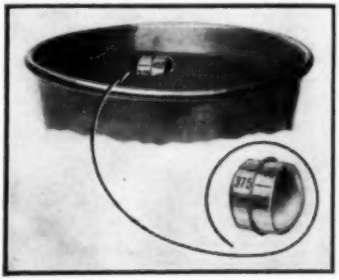
"Manufacturers who have been accustomed to using aluminum paste will find this product equally satisfactory . . . . Aluminum paste is commonly used throughout the trade, but gold paste is something new."

Floating Thermometer for Liquids

The Thermosphere is a new, all-metal, non-breakable floating thermometer for measuring the temperature of hot liquids. It has many industrial applications and is low priced.

It is constructed in the form of a small metal ball with a temperature scale engraved on the outside. Inside is a bimetallic mechanism, which, being effected by the heat of the liquid, makes the Thermosphere revolve and causes successive numbers on the scale to appear above the surface. When the Thermosphere stops revolving, the uppermost number indicates the temperature in degrees fahrenheit.

The standard Thermosphere is 1½-in. in diameter, chromium plated. The



Floats on hot liquid, turns and shows temperature of same.

scale extends from 350° to 400°F. and is tested for accuracy over that range.

The manufacturer will consider inquiries for special applications. The size can be varied considerably and the scale extended from 50° to 600°F.

A product of Raytheon Mfg. Co., 53 Willow St., Waltham, Mass.

Blows Ceiling Heat Down

The Trane Projection Heater, a light weight, compact high-velocity unit of the propeller type, is a development of a novel means for conveying the natural reservoir of warm upper air in a building down to the floor—the actively occupied zone. It

SURFACERS

PORES NEED FILLING for smooth - textured attractive finishes. Presdwood, celotex, natural woods, rough metals and porous compositions need quick-drying, easy-sanding, high-bodied surfacers—in short, our CEL-U-LAK Surfacers.

These have unusually high body, coupled with low viscosity, permitting a heavy application by spray; air dry to sand in 1½ hours, force dry at 125° for 20 minutes. They are ground finely and have phenomenal adhesion and resistance to moisture.

CEL-U-LAK Surfacers are standard in white, ivory, dark grey and red. They have for 6 years been an outstanding successful item in our line. We suggest you examine it for your requirements.

The
VARNISH PRODUCTS CO.
CLEVELAND, OHIO

THAT UNUSUAL FINISH
that you notice on countless items of wood, paper, fabric and metal, is produced by spray gun application of

COTTON — WOOL — RAYON FLOCKS
of which we are the country's leading makers.

BRILLIANT FAST COLORS UNVARYING QUALITY
UNIFORM LENGTHS SPEEDY SERVICE
REASONABLE PRICES

The superior quality of our products is recognized and acknowledged by all users.

Claremont Waste Mfg. Co.
CLAREMONT, N. H.
The country's leading makers

provides velocities equal to those obtainable with blower types, but in a vertical air stream more suitable for the distant projection of warm air from considerable heights. The Trane Projection Heater diffuses the air stream and carries it a considerable distance at the same time.

This unit is primarily designed for ceiling mountings where its inherent operating characteristics function best. The warm upper air is drawn through the coils and then projected straight downward to the floor by a new 4-blade propeller fan. This initial high-velocity air stream induces a large amount of room air in its downward course and reaches the floor zone at a negligible velocity with a tendency to spread and blanket the floor.

For further information, write The Trane Co., La Crosse, Wisc.

"Japco Devilac"
(Resistant Finish)

A new glass-hard, waterproof, chemical-proof finish, available in clear and colors, is announced by Jamestown Paint and Varnish Co., Jamestown, Pa.

Quick facts about "Devilac" are:

1) Dries hard in 15 minutes.

2) Requires no primer.

3) Flows out smooth.

4) Unharmed by acids, alkalis, alcohol or gasoline.

5) Is highly adhesive; bonds perfectly with galvanized metal.

6) Can be used on wood, metal or concrete.

7) Has remarkable toughness and durability.

Congress of American Industry

The Congress of American Industry, held annually concurrently with the Annual Convention of the National Association of Manufacturers and the annual meeting of the National Industrial Council has been called to meet in New York, December 5 to 9, according to an announcement by the National Association of Manufacturers.

A prominent national figure will be invited to make the principal address on the closing day of the sessions.

Among those who have accepted invitations to address the Congress, the largest of such gatherings held in the United States, is Dr. Sumner H. Slichter, Professor of Economics of the Graduate School of Business Administration of Harvard University.

Professor Slichter will discuss the subject of "Analysis of Depression Cures." Other addresses will be made by Dr. Victor S. Heiser, author of "American Doctor's Odyssey" who will talk on health and working conditions in American Factories; Dr. Karl Taylor Compton, President of the Massachusetts Institute of Technology, will discuss "Industry and Science"; and Dr. Edward Ray Weidlein, Director of the Mellon Institute of Research, Pittsburgh, Pa., who will address the Congress on "Economic Research Affecting Industry." Under the tentative program for the Congress, it is planned to have leading public figures, industrialists, business leaders and specialists in various fields discussing such topics as "The Future for Business," "Present Business Trends," "Taxation," "International Views and Foreign Trade," "Working Conditions," "Industry and Agriculture," "Industry and Scientific Developments," "Labor Problems," and other subjects relating to industry and business.

The program of the National Industrial Council, which is a conference of National, State and Local Industrial Associations, sponsored by the National Association of Manufacturers, will open on Saturday, December 4. During its sessions the Council will be addressed by B. C. Forbes, noted publicist and financial writer on the subject "Winning Public Esteem." James A. Emery, general counsel of the National Association of Manufacturers, will address the Council on the subject "The Manufacturers and Public Affairs." Frank P. Johnston, Supervisor of the New York State Department of Education will discuss "Apprentice and Trade Extension Schools."

It is also planned to have addresses by leading figures on matters of industrial research, State and Federal legislation affecting business, employe training, taxation trends and related subjects.

A special effort is being made this year, according to announcement, to have as large as possible a group of junior executives and specialists attend the Congress sessions in addition to industrial leaders.

for enameling and lacquering
small parts . . . use

The "Speedip"

WHIRL ENAMELER

This is just the machine needed in every plant where coating small items is a major production activity . . . it saves time, labor and material. Puts a better finish on the product. The "Speedip" is self-contained, all operations being done within the machine. No loss of materials. No washing when changing colors. Mail us some of your items TODAY . . . we will finish them and return for your inspection. Don't miss this demonstration.

RONCI MACHINE CO.
45 River Avenue, Providence, R. I.

SILK SCREEN METHODS of REPRODUCTION

Fully Illustrated by the Author. Leatherette Binding. Size 5x7½ in. 193 Pages. 98 Illus...... $3.00

THIS new book is intended for Sign Painters, Card Writers, Display Men, Furniture Manufacturers, Novelty Manufacturers, Glass Etchers and For Domestic Use.

Every detail of the silk screen process is presented clearly in detail. All equipment is fully described and its use illustrated. All materials needed in the various kinds of silk screen work are mentioned with respect to their use to advantage. Estimates of costs and prices to charge are given.

Practical Publications, Inc.
222 East Ohio Street Indianapolis, Ind.

Treating Chromium Plate

In the September 1937 issue, we notice an article by A. L. Medel on "Decorative Treatment on Metal and How It Is Done by Spraying," beginning on page 12, which contains a remark about a "special alkali treatment" on chromium plated surfaces to make lacquer adhere better. We would like to know what this treatment consists of or, if this information is not available, what firms could do this treatment for us.—R. E. Co. (Machine Mfrs.)

Mr. Medel informs us that the material for the special treatment is made up of the following:

Trisodium Phosphate	(lbs.)	30
Caustic Soda	(lbs.)	4
Water	(lbs.)	200

The solution is used boiling hot. He says: "Clean one minute and rinse twice in clean boiling water. Dry with air." The chemical materials can be purchased from any chemical supply house.—EDITOR.

Emulsified Lacquer for Caskets?

We are interested in the process of lacquering funeral caskets with an output of about five per day. These do not require a lasting finish except for storage purposes, as of course, they are not under observation for longer than one or two days, and then buried.

Send in your problems and questions. Every finishing department has them. Well informed men are eager to help you—through Industrial Finishing. Also, if you have any more comments, or suggestions to add to the replies published here, please send them in. An exchange of ideas helps all of us.

Questions Answers

These caskets are all manufactured of wood and it occurs to us that emulsified lacquer, as described by Mr. L. Jay Smith in your July number (pages 27 and 28), would be more suitable than the present expensive synthetic lacquer we are using.

With our process we give four coats which are rubbed down with a vibrating sander and then pulled to a finish. The average time taken is four hours, and the results are excellent. In addition, the surface of the wood is extremely well finished and this adds to the cost. We stain, fill and seal in the usual manner.

Could these caskets be baked at a cheaper cost of production? We would like you to give us information regarding this, or put us in touch with supply houses for paints and lacquers if the process is possible.—N. A. U. Co., AUSTRALIA.

We have found the emulsion process to be of good merit in most similar types of wood finishing, particularly from an economic standpoint. The coating is accomplished principally because we are able to formulate a lacquer emulsion containing a high percentage of non-volatile or solid matter. However, this makes it possible to obtain a desired build or film thickness with a minimum number of coats.

Unfortunately, the structure of

a lacquer emulsion is such that creaming or a separation between the lacquer and water phase sometimes occurs during long storage or transportation. This geographically limits the area over which these products may be distributed, compared to the usual lacquer solution which undergoes very little change upon aging. We greatly appreciate your interest in this material but would be reluctant in attempting to give a foreign customer satisfaction, because the shipment of the emulsion would involve so much time, plus the possible time of storage upon arrival. — L. JAY SMITH (Roxalin Flexible Lacquer Co.).

In reply to the question: "Could these be baked at a cheaper cost of production?"

No, not in my opinion. You state that the finish you now use is excellent. It conforms exactly to the schedule we would suggest for identical conditions. Allowing for the misuse of the term "bake" and understanding that you mean force dry (which is the only practical method for hurrying a large wood unit) you would be adding to your cost of production in a large amount in time factor; moreover you would be taking a chance of damaging the wood by lowering its normal moisture content.

As to your question about using emulsified lacquer, it could be used with reservations, but I would not recommend its use for the following reasons:

1) Emulsified lacquers are still in the experimental stage.

2) They have been applied most successfully to paper and paper compositions.

3) Much is yet to be learned

SPRUANCE QUALITY
L-146 LACQUER

POSITIVE CHECK RESISTING
to HEAT and COLD

A TOUGH, DURABLE, CLEAR LACQUER OF HIGH QUALITY

Alcohol Resistant and Non-Blooming

An ideal Polishing Lacquer, polishing easily and retaining the brilliancy of the polish.

For complete information write the makers—

THE GILBERT SPRUANCE COMPANY

Specialists in the manufacture of wood and metal finishing products since 1907.

RICHMOND & TIOGA STREETS PHILADELPHIA, PA.

IT DOESN'T make any difference whether your work is enameling, painting, or other industrial finishing. Your experience tells you that results won't satisfy you or your customer unless you start with an ABSOLUTELY CLEAN SURFACE.

BE SURE
OF RESULTS

Use Oakite cleaning and BE SURE of removing every bit of dirt, oil, grease and foreign matter — right down to the surface. Oakite cleaning is thorough. It is fast. And SAFE... no fire risk... no fumes.

Ask us to suggest the correct Oakite material and method for your work. No obligation.

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OAKITE PRODUCTS, INC.
32F Thames St., NEW YORK, N. Y.

Branch Offices and Representatives in All Principal Cities of the U. S.

OAKITE
SPECIALIZED INDUSTRIAL CLEANING MATERIALS & METHODS

concerning the application of lacquer emulsions to different woods.

4) Only the seal coat could be applied with any practical utility.

5) Location is a deciding factor from two standpoints. Brisbane, Australia, is on the east coast and, unless we are greatly mistaken, the atmosphere there is excessively humid. Lacquer emulsions must allow the water portion to evaporate before the solvent portion, in order to obtain proper flow, etc. With an atmosphere saturated with moisture, the evaporation of this water phase would be slow and troublesome. Also, the stability of lacquer emulsions is not too well established, and a shipment from the United States to Australia (neglecting the present Eastern crisis) may result in a breaking of the homogeniety of the emulsion.—J. H. GRADY, Varnish Products Co.

To Remove Lacquer Fumes

I do occasional lacquer spraying on the ground floor of a 6-story building, and the exhaust from the booth is vented into an air shaft. The tenants of the apartments in the building complain of the odor, but unfortunately it is not permissible to erect a flue to the roof. Do you know of any means or method whereby the lacquer odor can in some way be filtered or otherwise neutralized? Any suggestion you might make will be greatly appreciated.—S. H. F.

It is unfortunate that you can not erect a stack to the roof, as that would be the real solution

to your problem. Any filtering device that you might use would possibly be adequate to trap not only all of the pigment but also some of the solvents—but it would not be satisfactory for removing all of the solvents and vapors; consequently, it would not be effective in overcoming the odor which we understand is the objectionable feature. — W. B. Crawford (Binks Mfg. Co.).

To Kill Grain of Fir Wood

We will appreciate any information you can give us as to what paint would be best to use on fir plywood to make a smooth finish, without having the grain of the wood show.

We expect to use black paint in our first experiment, but might desire to use other colors later. Do you believe a sander plane would make a smooth enough finish on the plywood, so that any kind of paint could be used and not show the grain?—A. Q. Co. (Bar Fixtures and Equipment).

You have a real problem here because fir has alternate layers of very soft and very hard grain. The soft porous grain must be filled thoroughly with good filler or undercoater, and when dry the surface must be sanded smooth. Then apply a moderately heavy coat of lacquer sealer or lacquer undercoat; let it dry, and sand again to a smooth surface. It may take two coats of lacquer undercoat, each followed by sanding in addition to the filler to effectively kill all traces of the wood grain. Then you will have a surface on which you can apply a thin top coat of whatever color you desire.

This method involves several operations and therefore it will be expensive. Perhaps, instead of using filler and lacquer undercoats, you might try using a coat

Portable Electric

SANDS — RUBS — POLISHES

A perfectly balanced smooth running machine that's easy to handle and saves expensive hand work in all industries that do finishing. Plugs into your electric light socket.

Finishing Equipment Corp.
Indianapolis

Rubbing Piano Surface

GRAINING PLATES

A wood grain finish gives your product a "QUALITY LOOK"!

• A Few Territories Available •

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of lacquer emulsion directly on the wood (see article about "Emulsified Lacquers for Porous Materials," July issue of INDUSTRIAL FINISHING, pages 27 and 28).—J. M. L.

Editor's Note: Has any other reader a suggestion or recommendation regarding this problem?

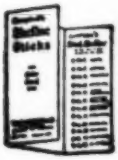
Care of Brushes

In September issue, page 11, I notice a letter from a showcase and fixture company wherein they ask about the care of brushes used in the finish room.

Brushes should never be left standing in finishing materials, especially if the bristles are long. The weight of the brush handle causes the bristles to bend or curl, and this curl may become permanent. If a brush is not cleaned after it is used, the paint or other finishing material left in it will become hard and a thick hard crust will form around the base of the brush where the bristles enter the handle. Then, when the brush is used again, this hard crust near the handle will gradually break into fine particles which come out from time to time and make specks on the finish. A brush in this condition is called "lousy."

When a used brush is not in service, it should be hung in a brush-keeper, which is a container partly filled with some gentle solvent for the material last used in the brush.

Brushes should be hung so their ends do not touch the bottom of the brush-keeper. Brushes used



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for paints should be kept in different containers from those used in varnish or lacquer, and shellac brushes should be kept to themselves. Paint and enamel brushes may be kept in a 50/50 mixture of turpentine and linseed oil. The same mixture can be used for keeping varnish brushes. Lacquer brushes may be kept in lacquer thinner, and shellac brushes in alcohol. However, since lacquer thinner and alcohol evaporate rapidly it is advisable, when the brushes are to be laid aside for several days or weeks, to clean them in the proper solvent, wrap them in brown paper and then lay them away to dry so they will be clean and ready for use when they are to go into service again. Brushes for paint, varnish or enamel, when taken out of the brush-keeper, should be carefully rinsed in clean solvent before being used.

Brush-keepers can be purchased from painters' supply houses or they can be made of some suitable container that happens to be available. Whatever type of container is used, however, it should have a cover to exclude dirt, dust, etc. Some brush users simply drill a small hole through the wide part of the brush handle and hang it on a wire.

Where brushes are used by several men in a factory paint shop or finishing room, I suggest that each man have a brush-keeper and that he be held responsible for his brushes. The foreman should see to it that each man takes proper care of his brushes, as this will always keep them in good condition for service and will prolong their useful life. When a workman calls for a new brush because an old one is worn out,

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he should be required to turn in the old one. A good clean brush of suitable size and quality for the work will make it possible for the workman to do clean effective work economically and satisfactorily.—J. K. COOPER.

Waterproof Finish

In your September issue of INDUSTRIAL FINISHING, on page 7, there is a letter requesting information about a waterproof finish for small fiber articles that are punched out of binders' board. We have the same problem with fiber and want to inquire if you have anything to offer in this matter.—S. E. H. Co.

Editor's Note: The following suggestions are offered by Mr. Greggs Phillips in reply to the September inquiry:

I hesitate to recommend any one system of finishing this type of material. The choice of a lacquer or a varnish treatment, or a combination of both, depends not only upon the character of the board itself but also upon the type of result you are looking for outside of the waterproofness afforded by the treatment. Detail on this, unfortunately, is not given in your letter, consequently I have to consider these as unknown factors with the result that I may cover more ground than will be necessary to fulfill your requirement. Neither have you pointed out any limitation of facility for application.

You will appreciate, at the outset, that the degree of waterproofness will depend upon the water resistance of the finish as well as the amount, by weight, which can be imparted to your board. Lacquer treatment offers the advantage of quick drying with inherently longer moisture resistance than a varnish treatment, assuming that you could perfect the application to the point that the treated surface would be a continuous protective film free from microscopic pinholes, and with no threads of fiber penetrating through to the surface of the film. Exposed fibers would mean that with a lacquer treated material the entrance of water would be slowed up, but

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that eventually the board would pick up plenty of additional weight if the treated material were immersed in water for 24 or more hours continuously.

The disadvantage of lacquer, assuming that you could successfully master the precaution of getting a continuous film deposited on the work, is that it would be difficult to handle because of its fast drying, in addition to its higher purchase cost and higher rate of consumption compared with varnish.

Varnish offers the advantage of being economical, as it could be purchased at fully 25% less than lacquer. The varnish could be either of the air drying or of the baking type and inherently provide better sealing against moisture. A long-oil varnish, similar to a spar varnish, drying to handle in 8 to 10 hours, would preclude the "tricky" application absolutely necessary in the case of lacquer and, I am sure, would satisfy any reasonable requirement in the way of an actual specification on hot and cold water resistance. If the board you intend using is porous, that is, not of the pressed fiber board type, the varnish treatment is probably the better one for you to consider.

The fact that you will punch small articles from the board makes the matter of application of great importance because the edges as well as the surfaces must be effectively sealed. Again, the vote is all the more in favor of varnish because, unlike lacquer, it will penetrate readily and, therefore, does not make it necessary to have the pieces carry a continuous water-resistant film. You could reduce the varnish with turpentine substitutes, immerse

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the punched articles (if they are comparatively small) into the reduced varnish (equal parts of varnish and turpentine substitute) by means of a basket dip, withdraw from the varnish after all bubbling has stopped, or longer to assure deeper impregnation, drain, tumble until the surface dries, and then spread out for a final overnight air-drying period, or bake if a baking varnish is used. Following this treatment, a more full-bodied appearance could be obtained by finishing with a lacquer, clear or pigmented, or a synthetic resin enamel.

Owing to the generally poor dipping characteristics of lacquer, spray application might have to be considered. Here again, lacquer would probably present application trouble in not reaching all parts of the article to be sealed. Pressed board would minimize this hazard to some extent, but not entirely eliminate it.

I hope the foregoing information covers the question prompting your inquiry. If you have any further questions concerning the mechanics of the treatment I shall be pleased to answer them to the best of my knowledge. However, I must remain neutral on the subject of specific product recommendations. The varnish treatment should prove to be successful and for recommendation I would suggest that you communicate with any one or more of the nationally known concerns advertising in INDUSTRIAL FINISHING.

Finishers' Tack Rags

ONE of the shop secrets of the old-time finishers, working with varnish, was the making and use of a tack rag—a piece of

clean cheesecloth or other thin non-linty cloth saturated in a thin slow-drying varnish, wrung out, and allowed to become partially dry or tacky. He used this to wipe off specks or dust, lint, sand particles and any other foreign accumulations from surfaces to be given a coat of varnish or enamel. This tack-ragging, before flowing on the varnish or enamel, gave wonderful results because of the perfectly clean surface it left.

The skillful use of a tack rag is still very desirable in certain finishing operations, regardless of what materials are being used or how they are applied. But much better tack rags are now available. They are regularly manufactured articles made of selected materials and, unlike the old finishers' tack rags, they are safe from the danger of spontaneous combustion and they retain their tack indefinitely. If a finisher puts one of them in a drawer and leaves it for several days, no one need worry about it deteriorating or starting a fire—which is something important.

One manufacturer of tack rags declares that his product requires 11 operations to complete it, and yet it is not expensive. The rag is made of fine cheesecloth impregnated with chemicals that create the lasting tacky condition. If at any time it doesn't seem to be tacky enough for efficient service, its tackiness can be restored by warming it slightly—possibly by holding it in the hands for a few minutes.

Good finishers know that it pays to thoroughly stir or mix and then strain all pigmented finishing materials before using them.

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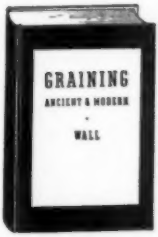

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EDITORIAL

Automotive Style Backed by Strong Attraction

Commenting upon the addition of a prominent automotive body designer to its staff, a New York Design & Color engineering firm declares that:

Builders of motor coaches, trucks and other similar revenue-producing units are fast discovering that it costs no more to produce a vehicle of pleasing line and smart contour. At the same time, operators' cost sheets are proving that units modernized as to design and color-style have greater earning ability through increased eye-appeal and advertising value in distinction. (Passenger appeal through comfortable seats, quiet, correct color harmonies, modern fabrics and smartly uniformed attendants.)

The subject is one of timely and pertinent consideration. By anticipating the increasingly high standards demanded in design and color excellence by the general public, any company can accomplish much toward traffic increases.

Intelligent Use of Color Stimulates Sales

The value of different color combinations in stimulating sales is receiving a great deal of attention at the present time. This applies both to the merchandise itself and to the package.

Retail shoppers, according to experts in this field, react favorably to certain color effects, just as a child is fascinated by a circus parade. A smart choice of colors, used on your products, will most certainly attract favorable attention and create a buying urge. This can be readily proved by a little observation on your own part. Note the number of articles that color has put across in a big way—articles of everyday use.

The value of showmanship is recognized by political and business leaders. Showmanship is nothing more than "color" . . . . applied where it is highly effective.

No matter how good a piece of merchandise may be, unless it is surrounded by the essential glam

our of sales appeal, it is likely to be just a shelf warmer.

The value of color does not stop with the merchandise itself; the package in which the article is merchandised must have sales appeal too—made possible by choosing the right color combination.

In Syracuse, N. Y., one of the country's largest manufacturers of paper boxes is conducting experiments in the use of color combinations in boxes, as a means of breaking down the sales resistance of indifferent buyers.

This matter of color calls for careful study. Many concerns have experimented successfully with the use of color as a means of speeding up the sales of slow moving items. Holiday merchandise especially calls for additional study in this matter, because people of all ages must be reached through the sales agency of color.

Yesterday and Today (In Spraying and Dipping)

(A splendid editorial from an experienced man who uses spraying and dipping equipment.—Editor.)

There is a lot more to these two words [Yesterday and Today] than the average company that uses spraying and dipping equipment realizes. The spray guns and booths that were used five or ten years ago for finishing cannot be classified as modern equipment—nor can they be expected to produce and finish the modern materials that are used today, and still turn out a fine spray or dip job.

The majority of factory managers and heads of a lot of concerns think that the foreman of the finishing department can work miracles and keep up with their competitors in the same line. But that is where the shoe pinches, and the finishing foreman's worries start, because no matter how good a finisher is, he can only accomplish what his equipment is made for.

For instance, formerly, when spraying enamel and lacquer, an 8-cu.ft. spray gun was satisfactory, but now that we have synthetic materials of all types, a 12 to 14-cu.ft. spray gun is required to spray this material and spray it properly—and to reach the trend of production that is needed today.

Any manager or superintendent who will take time to study the facts of the present day spraying will surely find that he will save his company money and labor by installing this equipment. The new water type of spray booth is a boon to the trade, not only to the production viewpoint but also on the health of the operator.

Where a small booth is used with the new type of spray guns, the fumes are a great deal heavier and develop faster in the small chamber than the suction fan can draw them out, therefore, the operator has to inhale these fumes which, in the long run, are injurious to the health of the operator—and this is something that no concern can overlook nowadays. As we all know, when a worker has the proper surroundings to work in, he can produce more and finer work than when he is handicapped with poorer equipment.

The same faults can be found in dipping work. The new modern equipment now available can eliminate a lot of extra handling and

will be found to be cheaper than the old way. A lot of concerns will find that by using the new spray equipment they can find a space where they can use dipping equipment to good advantage and thereby cut their cost, not only in labor but also in materials—as well as boost the sales of their products by having them finished the finest that can be turned out.

I wish to advise all of the managers, superintendents and purchasing agents to investigate and study up on the new ideas of spraying and dipping equipment; then survey their own and have a heart to heart talk with their finishing foreman, and see if they don't find that they can use these things to their own advantage. After they have agreed on what they need, let them call in any of the present spray and dipping equipment companies. These concerns will be glad to put their engineers to work on the layout and plans and place the company on a modern base of production which will satisfy all concerned. I am writing from actual experience, as I have used all the modern materials that are sold on the market and have found that without the modern equipment to work with, an operator is like a sailboat without a sail.—H. H. FORD.

Furniture Manufacturers: A Suggested "What to Make"

A lady furniture stylist has written us a suggestion that should interest furniture manufacturers. While it doesn't deal with finishing, it suggests an item to be made that will have sales appeal — and, of course, every manufacturer must have salable items in his line or he will have no use for a finishing department.

Briefly it has to do with a modern piece of furniture which will contain a convenient compartment, drawer or tray for women's necessary sewing materials. After investigating this matter, she finds that the sewing cabinets now on the market do not fit in with furniture in modern homes. According to her conclusions:

Here we find an item that has utility, a market, and which offers a chance to pioneer new developments that add plus appeal. It would seem that manufacturers who have learned to build bars into every style desk, table and bookcase, and have invented a miriad of "gadgets" of questionable utility to fit into dressers, bookcases, racks, etc., might devise smartly styled living room and bedroom units with sewing boxes or trays as an integral part.

Night stands and dressers or vanities offer an opportunity to add a sewing kit, and women will be fascinated by the appeal . . . . and usefulness of it. A vanity

becomes new and interesting when it adds to its appeal that a woman can keep her sewing in a handy compartment ready for an emergency rip or tear.

A little thought and ingenuity will suggest many practical ways to include this unit in novelty pieces. If properly executed this special feature will find a receptive market.

Manufacturers and designers, however, will do well to question their wives and secretaries to find what is required of a sewing box. Avoid freak designs, build style as well as utility into the piece equipped with the sewing unit. Fit it with inexpensive accessories and, above all, be practical. Manufacturers will find a new market opening for them, where fields formerly bloomed with clover but have gone to seed with neglect.

Clean Air—A Possibility in Finishing Rooms

Since clean air is so desirable in finishing rooms, every new idea or practical application in the line of air cleaning is of interest to concerns that do finishing. One of the latest news releases relating to an air cleaning installation comes from the Westinghouse Technical Press Service, East Pittsburgh, Pa. Quoting from the bulletin:

In Chicago's downtown loop area where annually the dirt deposited out of the atmosphere averages 1000 tons per square mile, electrical engineers are producing the cleanest air in the world. Before being distributed through the lower floors of the Field Building, air is cleaned by an electrostatic process developed by the Westinghouse Research Laboratories which removes up to 99%, by weight, of all particles in the atmosphere, even those which are as small as four-millionths of an inch in diameter and almost sub-microscopic. In every cubic foot of city atmosphere millions of tiny particles may remain continually suspended and it has been found that they can be removed only by this ingenious electrical treatment.

Dust particles so small that they flow through any mechanical filter are removed in a simplified process of electric precipitation. By this process, impurities are taken from the air, not by sifting them out mechanically but charging all particles electrically and then pulling them out as they pass through an electrostatic field, in a manner similar to that by which a magnet attracts iron filings. . . .

Particles under two and one-half thousandths of an inch in size pass readily through 200-mesh screens of mechanical filters. Although otherwise invisible, these particles may be seen as motes flickering in sunbeams; however, they are exceedingly coarse when compared with the the atmospheric type of dust that fills the air of cities and which may

END TABLE CABINET

As a suggestion to modern furniture manufacturers, an informed stylist calls attention to the possibilities of a table-cabinet of the type shown here, and suggests that the top drawer be fitted with a sewing tray — some place for milady's sewing materials, which practically every woman needs. Photo, courtesy of American Furn. Mart.

be removed only by electrical treatment. . . .

Perhaps this may be a forerunner of what will eventually be installed in some of our best equipped finishing rooms.

Heating Corrosive Liquids

A new folder, dealing with methods of heating corrosive liquids used in the various process industries, is available on request from the Heil & Co., 3088 W. 106th St., Cleveland, Ohio. In addition to information on the company's steam, gas and electric tank-heating equipment, immersion coils, etc., it gives diagrams of pipework connection details, graphs of heating speeds, and other data.

Detroit Rex Opens Cincinnati Office

In line with the general expansion program recently inaugurated, the Detroit Rex Products Co., of Detroit, Mich.—manufacturers of Detrex degreasing machines, Perm-A-Clor and Triad solvents, and Triad alkali cleaners and strippers — has opened a branch office located in the Provident Bank Bldg. at Cincinnati, Ohio.

This office will serve the lower Ohio and Indiana areas, as well as the northern section of Kentucky. A warehouse at Lockland, Ohio, will carry ample stocks of solvents, so that immediate delivery can be made to all points in this territory.

The addition of this new branch office will help to increase the scope of the personal service facilities offered by the company to its many customers in this area.

Paradene—Coal-Tar Resin

The Neville Co., Pittsburgh, Pa., announces a new dark low-priced coal-tar resin known under the trade name "Paradene." Paradene is produced in three grades divided according to melting point range. It is a uniform resin manufactured under carefully controlled conditions from a large unvarying raw material supply. It is not the by-product of another operation, but is a resin manufactured in a complete new production unit. Experimental work carried on in the Neville laboratories has shown that Paradene possesses unusual promise of application in aluminum vehicles, impregnating compounds, low-cost adhesives, filling compounds, pipe coatings, caulking and sealing compounds, etc.

Aluminum Paint Manual

A new book of 100 pages, 5¼x8¼-in., bound in aluminum, blue and white and published by the Aluminum Co. of America, Pittsburgh, Pa., contains a wealth of information about the characteristics, uses, ingredients and methods of applying aluminum paints. The book is generously illustrated, has an alphabetical cross index of subjects and a chart showing 10 actual samples of aluminum finished chips. It should be in every industrial library.

Wing Mfg. Co. Enlarges Plant

Extensive additions to the Newark, N. J., plant of the L. J. Wing Mfg. Co., manufacturers of heating and ventilating equipment, blowers, turbines, etc., will give considerably increased production capacity. The extensions are being made to the main factory building. The company reports an unprecedented increase in business in 1937.

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